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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,965	10/15/2003	David W. Bainbridge	2400/14(b)	8637
7590 11/08/2005			EXAMINER	
Jack C. Sloan, Esq. Dorr, Carson, Sloan, Birney, P.C. 3010 East 6th Avenue Denver, CO 80206			VO, HAI	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/685,965

Applicant(s)

BAINBRIDGE, DAVID W.

Examiner

Hai Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0817.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Election/Restrictions

1. The restrictions are considered moot in view of the cancellation of the non-elected claims.
2. The 112 claim rejections are withdrawn in view of the present amendment.
3. The art rejections over Kasahara et al (US 4,034,506) in view of DVD disc "Lectro Engineering Company, MTM Systems" are maintained.
4. The art rejections over Baindridge et al (US 6,357,054) as evidenced by Kinoshita et al (WO 00/39224) are withdrawn in view of the present arguments. Baindridge fails to teach the adhesive having a hardness in the range as recited by the claims.
5. The art rejections over Nickerson et al (US 6,301,722) in view of DVD disc "Lectro Engineering Company, MTM Systems" are withdrawn in view of the present arguments. Nickerson fails to teach the adhesive having a hardness in the range as recited by the claims.
6. The art rejections over Fritschel (US 3,856,721) in view of DVD disc "Lectro Engineering Company, MTM Systems" are withdrawn. Fritschel fails to teach the adhesive having a hardness in the range as recited by the claims. However, new grounds of rejections are made in view of Carlson et al (US 5,849,864).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

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the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-8, 12, 15-18, 22-25, and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasahara et al (US 4,034,506) in view of DVD disc "Lectro Engineering Company, MTM Systems" substantially as set forth in the 04/26/2005 Office Action. The art rejections have been maintained for the following reasons. As admitted by Applicant, Kasahara teaches every limitation as required by claim 1 except the hardness of the adhesive (as shown in table 1 of the 08/15/2005 amendment). The examiner disagrees. Applicant's attention is directed to column 9, lines 35-37. Kasahara discloses a liquid adhesive having a viscosity of about 50 to 7000 cps, which falls within the range disclosed in the present specification (page 15, lines 15-20). It appears that the hardness of the adhesive after curing and its viscosity are correlated. Therefore, it is not seen that the hardness of the adhesive of Kasahara could have been outside the claimed range as its viscosity is within the claimed range.
9. Claims 9-11, 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasahara et al (US 4,034,506) in view of DVD disc "Lectro Engineering Company, MTM Systems" as applied to claim 1 above, further in view of Shannon et al (US 4,777,763). Kasahara does not specifically disclose the beads formed from hollow ceramics or glass. Shannon, however, teaches a plant growing board for use in hydroponic gardening comprising polyethylene hollow beads, glass, clay hollow beads blended with the fibers to enable the board to float (column 8, lines 25-30). Therefore, it would have been obvious to

one having ordinary skill in the art at the time the invention was made to use the glass or clay hollow beads in combination with the polyethylene beads because such is an intended use of the material and Shannon provides necessary details to practice the invention of Kasahara.

10. Claims 14 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasahara et al (US 4,034,506) in view of DVD disc "Lectro Engineering Company, MTM Systems" as applied to claim 1 above, further in view of Schwab et al (US 3,877,172). Kasahara does not specifically disclose the beads formed from a thermosetting material. Schwab, however, teaches a foamed plastic profile member for hydroponic cultivation comprising a plurality of foam pieces held together by a foamed binder as shown in figure 8. Schwab teaches the foam pieces made from a polyurethane, polystyrene and urea formaldehyde (column 5, lines 35-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the thermosetting material for the thermoplastic material to form the beads because two foam materials have been shown in the art to be recognized equivalent materials for use in the hydroponic cultivation and growth of plants.

11. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasahara et al (US 4,034,506) in view of DVD disc "Lectro Engineering Company, MTM Systems" as applied to claim 1 above, further in view of Tully et al (US 3,710,510). Kasahara does not specifically disclose the bead being coated with a coupling agent comprising silane as disclosed in the specification.

Tully, however, teaches a plant growth media comprising expanded clays with a variety of particle sizes and coated with silane to render hydrophobic so as to sustain growth of young seedlings and to provide maximum opportunity for development of root system (column 2, lines 20-32, column 5, lines 10-30).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use expanded clays with a variety of particle sizes and coated with silane to render hydrophobic so as to sustain growth of young seedlings and to provide maximum opportunity for development of root system.

12. Claims 1-8, 12, 13-20 and 22-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bainbridge et al (US 6,357,054) in view of Carlson et al (US 5,849,864). Bainbridge discloses a breathable padding material comprising a plurality of plastic beads having an average diameter between 0.05 to 0.5 inch (1.27 to 12.7 mm) (column 5, lines 10-15) within the claimed range. The plastic beads are treated with corona before fusing together with an adhesive (column 15, lines 10-12). Bainbridge discloses the beads having void volume from 25% to 35% (column 5, lines 35-36). Bainbridge discloses the padding material placed in a cloth-like casing or net-like casing (column 4, line 64 et seq.). The padding is used in combination with a hard plastic outer shell (figure 3). Bainbridge is silent as to the amount of the adhesive being used to fuse the beads together.
- However, it appears that Bainbridge uses the same material to form the bead having the size within the claimed range. Further, the porosity of the composite

material including the beads and the adhesive is within the claimed range. Since the porosity is essentially regulated by the bead size and the amount of the adhesive being used to held the beads together. Therefore, it is the examiner's position that the amount of the adhesive would be inherently present within the claimed range so as to enable the composite material to have the porosity within the claimed range.

Applicant argues that fusing the '054 patent beads by steaming could create a system wherein no adhesive is present. The examiner disagrees. Applicant's attention is directed to column 15, lines 10-13. The beads are fused together by an adhesive. As previously discussed above, the porosity is essentially regulated by the bead size and the amount of the adhesive being used to held the beads together. Bainbridge apparently uses the same material to form the bead having the size within the claimed range. The composite material of Bainbridge has a porosity within the claimed range. Therefore, it is not seen that the amount of the adhesive being used could have been outside the claimed range so as to have a porosity within the claimed range. The amount of the adhesive must be necessarily present within the claimed range in order to achieve the composite structure having a porosity within the claimed range.

Bainbridge does not specifically disclose the hardness of the adhesive. Carlson, however, teaches a polyurethane adhesive possessing long shelf life, extended pot life and curing rapidly on demand (column 1, lines 43-46). Carlson teaches the polyurethane adhesive made from rubinate 9272, which is exactly

the same adhesive used by Applicants. Therefore, it is not seen that the adhesive of Bainbridge as modified by Carlson would have a hardness after curing outside the claimed range as the same adhesive material and the same amount of the adhesive are employed. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the adhesive as taught by Carlson to fuse the beads together because the adhesive can be used to join the plastic beads together, having long shelf life, extended pot life and curing rapidly on demand.

Bainbridge as modified by Carlson does not specifically disclose that the beads are electrical excitation treated more than once to accomplish more than one kind of treatment. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the foam plate of Bainbridge as modified by Carlson is identical to or only slightly different than the claimed composite structure prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity as discussed above. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Bainbridge/Carlson.

13. Claims 9-11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baindridge et al (US 6,357,054) in view of Carlson et al (US 5,849,864) as applied to claim 1 above, further in view of Giardello et al (US 6,525,125). Baindridge does not specifically disclose the beads made from ceramic or hollow glass microspheres. Giardello, however, teaches a composition for use in protective paddings comprising thermoplastic, thermoset, ceramic, and hollow glass microspheres dispersed in a polyolefin matrix (abstract, column 6, lines 1-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the thermosetting, ceramic and hollow glass microspheres in combination with thermoplastic beads because such is an intended use of the material and Giardello provides necessary details to practice the invention of Baindridge.
14. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baindridge et al (US 6,357,054) in view of Carlson et al (US 5,849,864) as applied to claim 1 above, further in view of Brother et al (US 6,485,446). Baindridge does not specifically disclose the beads having surface treated with a coupling agent. Brother, however, teaches a protective padding comprising a plurality of microspheres, each having surfaces treated with a non-slippery, high friction materials to increase the rate of shear at the interface of each microsphere, thereby forming a conforming energy absorbing masma.
15. Claims 1-8, 12, 15-20, and 22-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nickerson et al (US 6,301,722) in view of Carlson et al (US

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5,849,864) and DVD disc "Lectro Engineering Company, MTM Systems."

Nickerson discloses a breathable padding material comprising a plurality of plastic beads having an average diameter between 0.05 to 0.5 inch (1.27 to 12.7 mm) (column 7, line 5) within the claimed range. The plastic beads are fusing together with an adhesive (column 15, lines 10-12). The adhesive first exists as a liquid while in initial contact with the beads and then is cured to full strength (column 6, lines 28-32). Likewise, the adhesive is a two part resin and a thermosetting adhesive. The adhesive remains as flexible as possible in use while still holding the beads (column 6, lines 34-35). Likewise, the adhesive is a thermoplastic resin. Nickerson discloses the beads having void volume of 35% (column 6, line 43). Nickerson discloses the padding material placed in a cloth-like casing or net-like casing (figure 4, column 3, lines 50-55, column 4, lines 55-65). The padding is used in combination with a hard plastic outer shell.

Nickerson is silent as to the amount of the adhesive being used. However, it appears that Nickerson uses the same material to form the bead and the bead has the size within the claimed range. Further, the porosity of the composite material including the beads and the adhesive is within the claimed range. Since the porosity is essentially regulated by the bead size and the amount of the adhesive being used to held the beads together. Therefore, it is the examiner's position that the amount of the adhesive would be inherently present within the claimed range so as to enable the composite material to have the porosity within the claimed range as the bead size falls within the claimed range.

Nickerson does not specifically disclose the hardness of the adhesive.

Carlson, however, teaches a polyurethane adhesive possessing long shelf life, extended pot life and curing rapidly on demand (column 1, lines 43-46). Carlson teaches the polyurethane adhesive made from rubinate 9272, which is exactly the same adhesive used by Applicants. Therefore, it is not seen that the adhesive of Nickerson as modified by Carlson would have a hardness after curing outside the claimed range as the same adhesive material and the same amount of the adhesive are employed. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the adhesive as taught by Carlson to fuse the beads together because the adhesive can be used to join the plastic beads together, having long shelf life, extended pot life and curing rapidly on demand.

Nickerson does not specifically disclose the beads being treated with plasma before fusing together with an adhesive. A DVD disc "Lectro Engineering Company, MTM Systems" shows that the powdered material having a surface treated with plasma discharge to provide an increase in the surface energy of the material, thereby enhancing adhesive strength of the material. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the surface of the polyethylene beads treated with the plasma discharge prior to the adhesive coating motivated by the desire to provide an

increase in the surface energy of the beads, thereby enhancing adhesive strength between the adhesive and the beads.

Nickerson as modified by Carlson and DVD does not specifically disclose that the beads are electrical excitation treated more than once to accomplish more than one kind of treatment. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the foam plate of Nickerson as modified by Carlson and DVD is identical to or only slightly different than the claimed composite structure prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity as discussed above. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Nickerson/Carlson/DVD.

16. Claims 9-11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nickerson et al (US 6,301,722) in view of Carlson et al (US 5,849,864) as applied to claim 1 above, further in view of Giardello et al (US 6,525,125). Nickerson does not specifically disclose the beads made from ceramic or hollow glass microspheres. Giardello, however, teaches a composition for use in protective paddings comprising thermoplastic, thermoset, ceramic, and hollow glass microspheres dispersed in a polyolefin matrix

(abstract, column 6, lines 1-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the thermosetting, ceramic and hollow glass microspheres in combination with thermoplastic beads because such is an intended use of the material and Giardello provides necessary details to practice the invention of Nickerson.

17. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nickerson et al (US 6,301,722) in view of Carlson et al (US 5,849,864) as applied to claim 1 above, further in view of Brother et al (US 6,485,446). Nickerson does not specifically disclose the beads having surface treated with a coupling agent. Brother, however, teaches a protective padding comprising a plurality of microspheres, each having surfaces treated with a non-slippery, high friction materials to increase the rate of shear at the interface of each microsphere, thereby forming a conforming energy absorbing masma.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HV

Hai V.

**HAI VO
PRIMARY EXAMINER**